

What is claimed is:

1. A method for compensating polarization mode dispersion, comprising the steps of:

extracting and selecting an optical signal as a monitoring signal,

detecting an output of said optical signal, and

controlling said optical signal so that said output of said optical signal is maximized.

2. The compensating method as defined in claim 1, wherein said optical signal is controlled with a polarization mode dispersion compensator.

3. The compensating method as defined in claim 2, wherein said polarization mode dispersion compensator comprises a polarization rotator, a polarizer and an optical electric power detector, whereby said optical signal is introduced into said polarization rotator to control said optical signal so that said output of said optical signal is maximized through the rotation of a plane of polarization of said optical signal, and then, introduced into said polarizer to pass a linear polarization of said optical signal therethrough, and then, introduced into said optical electric power detector to detect said output of said optical signal.

4. The compensating method as defined in claim 1, wherein said optical signal is controlled in multistage with a plurality of polarization mode dispersion compensators.

5. The compensating method as defined in claim 3, wherein said polarization rotator is a Faraday rotator.

6. The compensating method as defined in claim 1, further comprising the step of amplifying said output of said optical signal.

7. The compensating method as defined in claim 6, wherein said output of said optical signal is amplified with a rare earth metal doped optical fiber amplifier.

8. A polarization mode dispersion compensator, comprising:

a polarization rotator,

a polarizer, and

an optical electric power detector,

wherein a given optical signal is introduced as a monitoring signal into said polarization rotator to rotate a plane of polarization of said optical signal so that

an output of said optical signal is maximized, and then, introduced into said polarizer to pass a linear polarization of said optical signal therethrough, and then, introduced into said optical electric power detector to detect said output of said optical signal.

9. The polarization mode dispersion compensator as defined in claim 8, wherein said polarization rotator is a Faraday rotator.

10. An optical fiber communication system, comprising:

a transmitter,

a receiver,

a polarization mode dispersion compensator provided between said transmitter and said receiver, and

an optical fiber path to connect said transmitter and said receiver via a polarization mode dispersion compensator and to transfer a given optical signal to said receiver from said transmitter.

11. An optical fiber communication system, comprising:

a transmitter,

a receiver,

a plurality of polarization mode dispersion compensators provided between said transmitter and said receiver, and

an optical fiber path to connect said transmitter and said receiver via a polarization mode dispersion compensator and to transfer a given optical signal to said receiver from said transmitter.

12. The optical fiber communication system as defined in claim 10, wherein said polarization mode dispersion compensator comprises a polarization rotator, a polarizer and an optical electric power detector, whereby said optical signal is introduced into said polarization rotator to control said optical signal so that said output of said optical signal is maximized through the rotation of a plane of polarization of said optical signal, and then, introduced into said polarizer to pass a linear polarization of said optical signal therethrough, and then, introduced into said optical electric power detector to detect said output of said optical signal.

13. The optical fiber communication system as defined in claim 12, wherein said polarization rotator is a Faraday rotator.

14. The optical fiber communication system as defined in claim 10, further comprising an amplifier provided between said transmitter and said receiver.

15. The optical fiber communication system as defined in claim 14, wherein said amplifier is a rare earth metal doped optical fiber amplifier.